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THE MUSICAL TIMES, And Singing Class Circular.

SEPTEMBER 1st, 1860.

THE ORCHESTRA.

By HECTOR BERLIOZ.*

THE orchestra may be considered as a large instrument capable of uttering at once or successively a multitude of sounds of different kinds; and of which the power is mediocre or colossal, according as it comprises the whole or a part only of those executive means belonging to modern music, and according as those means are well or ill chosen and placed in acoustic conditions more or less favorable.

The performers of all kinds, whose assemblage constitutes it, thus seem to be its strings, its tubes, its pipes, its plains of wood or metal; machines intelligent it is true, but subject to the action of an immense key-board, played upon by the conductor, under the direction of the composer.

I have already said, I believe, that it seemed to me impossible to indicate how fine orchestral effects are to be found; and that this faculty,—developed doubtless by practice and rational observation,—is like the faculties of melody, of expression, and even of harmony; and is of the number of those precious gifts which the musician-poet, the inspired inventor, must receive from Nature herself.

But certainly it may be demonstrated easily, and in a method almost exact, the art of *making orchestras* fit to render faithfully compositions of all shapes and dimensions.

Theatrical orchestras and concert orchestras should be distinguished the one from the other. The former, in certain respects, are generally inferior to the latter.

The place occupied by the musicians, their disposal on a horizontal plane or on an inclined plane, in an enclosed space with three sides, or in the very centre of a room, with reverberators formed by hard bodies fit for sending back the sound, or soft bodies which absorb and interrupt the vibrations, and more or less near to the performers, are all of great importance. *Reverberators* are indispensable; they are to be found variously situated in all enclosed spaces. The nearer they are to the point whence the sounds proceed, the more potent is their influence.

This is why there is *no such thing* as music in the open air. The most enormous orchestra placed in the middle of an extensive garden open on all sides—like that of the Tuileries—would produce no effect. The reverberation from the palace walls even, were it placed against them, is insufficient; the sound instantaneously losing itself on all the other sides. An orchestra of a thousand wind instruments, with a chorus of two

thousand voices placed in a plain, would not have the twentieth part of the musical action that an ordinary orchestra of eighty players with a chorus of a hundred voices would have if well disposed in the concert-room at the Conservatoire. The brilliant effect produced by military bands in the streets of great towns comes in support of this statement, which it seems to contradict. But the music is not then in the *open air*; the walls of high houses skirting the streets right and left, avenues of trees, the fronts of grand palaces, neighbouring monuments, all serve as reverberators; the sound revolves and circulates freely in the circumscribed space thus surrounding it, before escaping by the points left open; but let the military band, pursuing its march, and continuing to play, leave the large street for a plain devoid of trees and habitations, and the diffusion of its sounds is immediate, the orchestra vanishes, there is no more music.

The best way of disposing the performers, in a room whose dimensions are proportioned to their number, is to raise them one above another by a series of steps, arranged in such a way that each row may send out its sounds to the hearer without any intermediate obstacle.

All well-organised concert orchestras should be thus arranged in steps. If it have been erected in a theatre, the stage should be completely closed in at the back, at the sides both right and left, and above, by an enclosure of wooden planks.

If, on the contrary, it be erected in a room dedicated to the purpose, or in a church where it occupies one of the extremities, and if, as it frequently happens in such cases, the back of this space be formed of massive building which sends back with too much force and hardness the sound of the instruments placed against it, the force of the reverberation may easily be mitigated,—and consequently the too great resounding,—by hanging up a certain number of draperies, and by bringing together at this point such bodies as will break the motion of the waves of sound.

Owing to the construction of our theatres, and to the exigencies of dramatic representation, this amphitheatrical disposal is not possible for orchestras intended for the performance of operas. The instrumentalists brought together, on the contrary, in the lowest central point of the theatre, before the footlights, and on a horizontal plane, are deprived of the majority of the advantages resulting from the arrangement I have just indicated for a concert orchestra: hence, what lost effects, what unperceived delicate gradations in opera orchestras, in spite of the most admirable execution! The difference is such, that composers are almost compelled to bear this in mind, and not to instrument their dramatic scores quite in the same way, as symphonies, masses, or oratorios, intended for concert-rooms and churches.

Opera orchestras were always formerly composed of a number of stringed instruments proportioned

* Reprinted from *Berlioz on Modern Instrumentation and Orchestration* (by permission).

to the mass of other instruments; but it has not been thus for many years. A comic-opera orchestra in which there were only two flutes, two hautboys, two clarinets, two horns, two bassoons, rarely two trumpets, and hardly ever any kettle-drums, had enough then in nine first violins, eight second violins, six violas, seven violoncellos, and six double-basses; but as four horns, three trombones, two trumpets, a long drum, and cymbals figure there now-a-days, without the number of stringed instruments having been increased, the balance is destroyed, the violins are scarcely to be heard, and the result of the whole is detestable. The orchestra of the grand opera, where there are, beside the wind instruments already named, two cornets à pistons and an ophicleide, then the instruments of percussion, and sometimes six or eight harps,—has not enough either in twelve first violins, eleven second violins, eight violas, ten violoncellos, and eight double-basses; it should have at least fifteen first violins, fourteen second violins, ten violas, and twelve violoncellos, which would be

21 First Violins.	2 Large Flutes.
20 Second do.	2 Hautboys.
18 Violas.	1 Corno Inglese.
8 First Violoncellos.	2 Clarinets.
7 Second do.	1 Corno di Bassetto, or one Bass-Clarinet.
10 Double-Basses.	4 Bassoons.
4 Harps.	4 Horns with Cylinders.
2 Piccolo Flutes.	2 Trumpets with Cylinders.

If a choral composition were to be executed, such an orchestra would require :—

46 Sopranos—Firsts and Seconds.
40 Tenors—Firsts and Seconds.
40 Basses—Firsts and Seconds.

By doubling or tripling in the same proportions, and in the same order, this mass of performers, a magnificent Festival orchestra might doubtless be obtained. But it is erroneous to believe that all orchestras should be constituted according to this system, based on the predominance of stringed instruments; very admirable results may be obtained from a contrary system. The stringed instruments,—too weak to prevail over masses of clarinets and brass instruments,—then serve as a harmonious link with the thrilling sounds of the wind instruments; softening their brilliancy in some cases, and animating their effect in others, by means of the tremolo, which renders musical even the roll of the drums by blending with them.

Common sense tells the composer—unless he be compelled to a different course by any particular form of orchestra—that he should combine his mass of performers according to the style and character of the work he brings forth; and according to the nature of the principal effects which the subject induces. Thus, in a *Requiem*, and in order to deliver musically the grand images of this *hymn of the dead*, I have employed four small orchestras of brass instruments (trumpets, trombones, cornets, and ophicleides), placed at reciprocal distance, at the four corners of the

well left unused in all those pieces where the accompaniments are to be very soft.

The proportions of a comic-opera orchestra would suffice for a concert orchestra intended for the performance of Haydn's and Mozart's symphonies.

A larger number of stringed instruments would even be, on several occasions, too much for the delicate effects which these two masters have usually assigned to the flutes, hautboys, and bassoons alone.

For Beethoven's symphonies, Weber's overtures, and modern compositions conceived in the grand and impassioned style, there needs, on the contrary, the mass of violins, violas, and basses which I have just indicated for the grand opera.

But the finest concert orchestra, for a room scarcely larger than that of the Conservatoire,—the most complete, the richest in gradations, in varieties of tone, the most majestic, the most powerful, and at the same time the most soft and smooth, would be an orchestra thus composed :—

2 Cornets à Pistons (or with Cylinders).
3 Trombones { 1 Alto, } or 3 Tenors.
1 Great Bass Trombone.
1 Ophicleide in B flat (or a Bass-Tuba).
2 Pairs of Kettle-Drums, and 4 Drummers.
1 Long Drum.
1 Pair of Cymbals.

main orchestra, formed of an imposing body of stringed instruments, of all the other wind instruments doubled and tripled, and often drummers playing on eight pairs of kettle-drums tuned in different keys. It is quite certain that the particular effects obtained by this novel form of orchestra, were absolutely unattainable by any other.

There occurs here an opportunity to remark upon the importance of the various *points of procedure for the sounds*. Certain parts of an orchestra are intended by the composer to interrogate and answer each other; now, this intention can only be made manifest and of fine effect, by causing the groups between which the dialogue occurs to be placed at sufficient mutual distance. The composer should therefore, in his score, appoint for them severally the disposal which he judges proper.

For the drums, long drums, cymbals, and kettle-drums, for instance, if they be employed to strike certain rhythms all at once—after the common mode of proceeding—they may remain together; but if they have to execute an interlocutory rhythm, of which one fragment is struck by the long drums and cymbals, and the other by the kettle-drums and drums, there is no doubt the effect will be incomparably better, finer, and more interesting, by placing the two masses of instruments of percussion at the two extremities of the orchestra, and consequently at a sufficient distance from one another. Hence it arises, that

the constant uniformity of the executive masses is one of the great obstacles to the production of sterling and really new works; it besets composers more from old custom, routine, laziness, and want of reflection, than from motives of economy,—motives unfortunately but too important, in France especially, where Music is so far from forming a part of the moral being of the nation, where the government does everything for theatres, and nothing at all for music properly so called, where great capitalists are ready to give 50,000*f.* and more for some great master's picture, *because that represents an intrinsic value*, yet would not lay out 50*f.* to render feasible, once a year, some solemnity worthy of a nation like ours, and fitted to display the very numerous musical resources which it really possesses without the capability of making them of use.*

It would nevertheless be curious to try for once, in a composition written *ad hoc*, the simultaneous employment of all the musical forces which might be gathered together in Paris. Supposing that a master had at his disposal, in a vast space adapted for this purpose by an architect who should be well versed in acoustics and a good musician, he ought, before writing, to determine with precision the plan and arrangement of this immense orchestra, and then to keep them always present to his mind while writing. It is obvious that it would be of the highest importance, in the employment of so enormous a musical mass, to take account of the distance or the nearness of the different groups which compose it; and this condition is one of the most essential in deriving the utmost advantage from it, and in calculating with certainty the scope of its effects. Until now, at the Festivals, merely the ordinary orchestra and chorus have been quadrupled or quintupled in their several parts, according to the greater or less number of the performers; but in the case proposed it would be quite another affair; and the composer who should attempt exhibiting all the prodigious and innumerable resources of such an *instrument*, would assuredly have to fulfil an entirely new task.

Here, then, is how—with time, care, and the necessary *outlay*—it could be effected in Paris. The disposal of the groups would remain at the will, and subject to the particular intentions, of the composer; the instruments of percussion, which exercise an irresistible influence on the rhythm, and which always lag when they are far from the conductor, should always be placed sufficiently near him to be able instantaneously and strictly to obey the slightest variations of movement and measure:—

120 Violins, divided into two, three, and four parts.

40 Violas, divided or not into firsts and seconds; and of which ten at least should be ready to play, when needed, the *Viole d'amour*.

45 Violoncellos, divided or not into firsts and seconds.

18 Double-Basses with 3 strings, tuned in fifths (G, D, A).

15 other Double-Basses with 4 strings, tuned in fourths (E, A, D, G).

4 Octo-Basses.

6 Large Flutes.

4 Third-Flutes (in *E flat*), improperly called in *F*.

2 Octave Piccolo Flutes.

2 Piccolo Flutes (in *D flat*), improperly called in *E flat*.

6 Hautboys.

6 Corni Inglesi.

5 Saxophones.

4 Bassoons-quinte.

12 Bassoons.

4 Small Clarinets (in *E flat*).

8 Clarinets (in *C*, or in *B flat*, or in *A*).

3 Bass-Clarinets (in *B flat*).

16 Horns (of which six should be with pistons).

8 Trumpets.

6 Cornets à Pistons.

4 Alto-Trombones.

6 Tenor-Trombones.

2 Great Bass-Trombones.

1 Ophicleide in *C*.

2 Ophicleides in *B flat*.

2 Bass-Tubas.

30 Harps.

30 Pianofortes.

1 very low Organ, provided with stops of at least 16 feet.

8 Pairs of Kettle-Drums (10 Drummers).

6 Drums.

3 Long Drums.

4 Pairs of Cymbals.

6 Triangles.

6 Sets of Bells.

12 Pairs of Ancient Cymbals (in different keys).

2 very low Great Bells.

2 Gongs.

4 Pavillons Chinois.

467 Instrumentalists.

40 Children Sopranos (firsts and seconds).

100 Women Sopranos (firsts and seconds).

100 Tenors (firsts and seconds).

120 Basses (firsts and seconds).

360 Chorus singers.

It will be perceived that in this aggregate of 827 performers, the chorus-singers do not predominate; and even thus, there would be much difficulty in collecting in Paris three hundred and sixty voices of any excellence,—so little is the study of singing at present cultivated or advanced.

It would evidently be necessary to adopt a style of extraordinary breadth, each time the entire mass should be put in action; reserving the delicate effects, the light and rapid movements, for small bands which the author could easily arrange, and make them discourse together in the midst of this musical multitude.

Beside the radiant colours which this myriad of different qualities in tone would give out at every moment, there would be unheard-of *harmonic effects* to be deduced from them.

From the division into eight or ten parts of the 120 violins, aided by the 40 violas, in their high

* This ideal orchestra was sketched in 1856, previous to the great realizations by the Handel Festivals at the Crystal Palace in 1857 and 1859.—Ed.

notes, for the angelic ærial accent, and for the *pianissimo* tint.

From the division of the violoncellos and double-basses below in slow movements, for the melancholy religious accent, and for the *mezzo-forte* tint.

From the union, *in a small band*, of the very low notes of the clarinet family, for the gloomy accent, and for the *forte* and *mezzo-forte* tints.

From the union, *in a small band*, of the low notes of the hautboys, corni inglesi, and bassoons—quite, mingled with the low notes of the large flutes, for the religiously mournful accent, and the *piano* tint.

From the union, *in a small band*, of the low notes of the ophicleides, bass-tuba, and horns, mingled with the *pedals* of the tenor-trombones, with the lowest notes of the bass-trombones, and of the 16 feet stop (open flute) of the organ, for profoundly grave, religious, and calm accents, and in the *piano* tint.

From the union, *in a small band*, of the highest notes of the small clarinets, flutes, and piccolo flutes, for the shrill accent, and the *forte* tint.

From the union, *in a small band*, of the horns, trumpets, cornets, trombones, and ophicleides, for a pompous and brilliant accent, and for the *forte* tint.

From the union, *in a large band*, of the 30 harps with the entire mass of bowed instruments, playing *pizzicato*, and thus forming together another gigantic harp with *nine hundred and thirty-four* strings, for graceful, brilliant, and voluptuous accents, in all tints and gradations.

From the union of the 30 pianofortes with the six sets of bells, the twelve pairs of ancient cymbals, the six triangles (which might be tuned, like the ancient cymbals, in different keys), and the four pavillons chinois, constituting a metallic *orchestra* of percussion, for joyous and brilliant accents, in the *mezzo-forte* tint.

From the union of the eight pairs of kettle-drums with the six drums, and the three long drums, forming a small *orchestra* of percussion, and almost exclusively *rhythmical*, for the menacing accent, in all tints.

From the mixture of the two gongs, the two bells, and the three large cymbals, with certain chords of trombones, for the lugubrious and sinister accent, in the *mezzo-forte* tint.

How to enumerate all the harmonic aspects under which each of these different groups associated with other groups either sympathetic or antipathetic with them would appear!

There might be given grand duets between the band of wind instruments and the stringed band.

Between one of these two bands and the chorus; or between the chorus and the harps and pianofortes only.

A grand trio between the chorus in unison and in octave, the wind instruments in unison and in octave, and the violins, violas, and violoncellos also in unison and in octave.

This same trio accompanied by a rhythmical form designed by all the instruments of percussion, the double-basses, the harps, and the pianofortes.

A simple chorus, double or triple, without accompaniment.

An air for violins, violas, and violoncellos *together*, or for wooden wind instruments *together*, or for brass instruments *together*, accompanied by a *vocal band*.

An air for sopranos, or for tenors, or for basses, or for all the voices in octave, accompanied by an *instrumental band*.

A small choir singing, accompanied by the large choir, and by some instruments.

A small band playing, accompanied by the large orchestra, and by some voices.

A grand deep melody, executed by all the bowed basses; and accompanied above by the violins divided, and the harps, and pianofortes.

A grand deep melody, executed by all the wind basses and the organ; and accompanied above by the flutes, hautboys, clarinets, and the violins divided.

Etcetera, etcetera, etcetera.

The system of rehearsals requisite for this colossal orchestra cannot be doubtful; it is that which must be adopted whenever there may be the intention of getting up a work of grand dimensions, the plan of which is complex, and certain parts or the whole of which offers difficulties in performance; it is the system of partial rehearsals. This is how the conductor will have to proceed in this analytical operation.

I take it for granted that he knows *thoroughly, and in its minutest details*, the score which he is about to have performed. He will first appoint two sub-conductors, who should—marking the beats of the bar in the general rehearsals—keep their eyes continually upon him, in order to communicate the movement to those masses too far removed from the centre. He will then select rehearsers for each of the vocal and instrumental groups.

He will first make them rehearse themselves, that they may be well instructed in the way in which they will have to direct the portion of study allotted to them.

The first rehearser will rehearse *isolatedly* the first sopranos, then the seconds, and then the firsts and seconds together.

The second rehearser will practise in the same way the first and second tenors.

The third rehearser will do the same by the basses. After which, three choirs, each composed of a third of the total mass, will be formed; and then lastly, the whole chorus will be practised together.

As an accompaniment to these choral studies, either an organ or a pianoforte may be used; assisted by a few wind instruments, violins, and basses.

The sub-conductors and the orchestral re-

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hearsers will practise isolatedly in the same way:—

1stly. The first and second violins separately ; then all the violins together.

2ndly. The violas, violoncellos, and double-basses separately ; then all together.

3rdly. The entire mass of bowed instruments.

4thly. The harps alone.

5thly. The pianofortes alone.

6thly. The harps and pianofortes together.

7thly. The wooden wind instruments alone.

8thly. The brass wind instruments alone.

9thly. All the wind instruments together.

10thly. The instruments of percussion alone ; particularly teaching the kettle-drummers to tune their kettle-drums well.

11thly. The instruments of percussion joined with the wind instruments.

12thly. Lastly, the whole vocal and instrumental mass united, under the direction of the conductor himself.

This method of proceeding will have the result of inducing, first, an excellence of execution that never could be obtained beneath the old system of collective study ; and next, of requiring from each performer but four rehearsals at most. It should not be neglected to have a profusion of tuning-forks of the exact pitch, among the members of the orchestra ; it is the sole means by which the accurate tuning of this crowd of instruments of such various nature and temperament can be ensured.

Vulgar prejudice stigmatizes large orchestras as *noisy* : but if they be well constituted, well practised, and well conducted ; if they perform sterling music, they should be called *powerful* : and certainly, nothing is more dissimilar than these two expressions. A trumpety little vaudeville orchestra may be *noisy*, when a large body of musicians properly employed shall be of extreme softness ; and shall produce—even in their loudest effects—sounds the most beautiful. Three ill-placed trombones will seem *noisy*, insufferable ; and the instant after, in the same room, twelve trombones will strike the public by their noble and *powerful* harmony.

Moreover, unisons acquire real value only when multiplied beyond a certain number. Thus, four violins of first-rate skill playing together the same part will produce but a very poor effect,—nay, perhaps, even detestable ; while fifteen violins of ordinary talent shall be excellent. This is why small orchestras—whatever the merit of the performers who compose them—have so little effect, and consequently so little value.

But in the thousand combinations practicable with the vast orchestra we have just described, would dwell a wealth of harmony, a variety of qualities in tone, a succession of contrasts, which can be compared to nothing hitherto achieved in Art ; and above all, an incalculable melodical, expressive, and rhythmical power, a penetrating

force of unparalleled strength, a prodigious sensitiveness for gradations of aggregate and of detail. Its repose would be majestic as the slumber of the ocean ; its agitations would recall the tempest of the tropics ; its explosions, the outbursts of volcanos ; therein would be found the plaints, the murmurs, the mysterious sounds of primeval forests ; the clamours, the prayers, the songs of triumph or of mourning of a people with expansive soul, ardent heart, and fiery passions ; its silence would inspire awe by its solemnity ; and organizations the most rebellious would shudder to behold its *crescendo* spread roaringly,—like a stupendous conflagration !

DESTRUCTION OF ST. MARTIN'S HALL BY FIRE.

WE regret to state that this highly popular music hall was almost entirely destroyed by fire, on Sunday morning last, August 26th. The fire is said to have originated in the extensive premises of Messrs. Kesterton, Coach-builders, at the corner of Hanover Street, in Long Acre, (immediately adjoining St. Martin's Hall), the whole of which were entirely destroyed. Notwithstanding the great efforts made to protect it, the flames caught the roof of St. Martin's Hall and extended downwards, destroying the large concert-room and its valuable contents. The ground floor and basement have fortunately escaped with but slight injury from the fire, as well as the portion of the building looking into Long Acre, comprising Mr. Hullah's private apartments. The building and property are of course insured to a considerable amount ; but there is reason to fear that Mr. Hullah's loss will greatly exceed the amount of insurance, and that he will stand in need—and doubtless receive—the active sympathy of the “musical” public, for whose benefit and enjoyment he has so successfully catered for many years.

Mr. Hullah was out of town at the time of the unfortunate occurrence, as was also Mr. Headland, his active manager. Mrs. Hullah and others were on the premises at the time, but were got out in safety.

It is gratifying to be able to state that, notwithstanding the magnitude of the conflagration, no lives were lost ; and the only personal injuries sustained were by the firemen, some of whom suffered severely.

It is worthy of remark, that this same Coach-factory was entirely destroyed by fire on a Sunday morning in the year 1851. When rebuilt, it was a noble-looking structure, and quite an ornament to the neighbourhood.

Brief Chronicle of the last Month.

BRENTWOOD.—The Rev. W. D. West has presented to Mr. A. H. Brown, conductor of the Brentwood Harmonic Society, a very handsome silver-mounted baton, in acknowledgment of the musical accompaniment at the late theatrical performances in the Grammar School.

CHELSEA.—On Wednesday evening, the 15th of August, a concert was given at the Oakley Rooms, for the benefit of a professor of music in adverse circumstances. The principal vocalists were Miss Fraser, Mrs. Paget, Mr. Tedder, Mr. Kenny, and Mr. Thornley ; pianist, Mr. Parker ; conductor, Mr. Davis. The concert gave great satisfaction, and was a decided success in a pecuniary point of view. Much credit is due to Mr. John Lane and Mr. Charles Long, the promoters, for their exertions in the cause of charity.

CRYSTAL PALACE.—On Friday, the 3rd of August, a selection of music was performed under the superintendence of the Vocal Association. The chorus numbered about 1000 voices. The solo singers were Madlle. Parepa and Madlle. Artot. Mr. Benedict conducted, and